Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_

**Unit 6, Part 1 (DNA History and Structure) – Learning Targets**

Pre-AP Biology, Mrs. Krouse

**What will I be able to do when I’ve finished this lesson?**

* I can identify the experiments and scientists involved in the discovery of DNA.
* I can describe the structure of the DNA molecule.

**What must I learn so I can do this?**

To be able to do this, I must be able to…

* Explain how Frederick Griffith’s experiment with the R and S strain bacteria demonstrated the presence of some “genetic molecule.” Explain what “transformation” is.
* Explain how Oswald Avery, Maclyn McCarty, and Colin Macleod’s experiment demonstrated that the genetic molecule from Griffith’s experiment was DNA.
* Explain how Alfred Hershey and Martha Chase’s experiment confirmed that DNA was the genetic material of viruses.
* Describe how Rosalind Franklin and Maurice Wilkins’ x-ray diffraction (aka x-ray crystallography) image contributed to James Watson and Francis Crick’s double helix model of the structure of DNA.
* Describe the structure of the DNA molecule using the following terms: nucleotide, deoxyribose / 5-carbon sugar / pentose sugar, phosphate groups, nitrogenous bases / nitrogen bases, hydrogen bonds, 5 prime / 5’ end, 3 prime / 3’ end, antiparallel, purine, pyrimidine, complementary base pairing, adenine, thymine, guanine, and cytosine.
* Explain how the results of Erwin Chargaff’s experiment led him to conclusion that adenine pairs with thymine and guanine pairs with cytosine.
* Be able to predict the frequency (%) of one nitrogen base given the frequency of another.
* Be able to write out a DNA sequence complementary to a sequence given (ex: A T C C G T A A).